In The Claims:

1. (original) A method of fabricating a shallow trench isolation (STI) structure, comprising the steps of:

    providing a substrate;

    forming a patterned mask layer over the substrate;

    patterning the substrate using the mask layer as an etching mask to form a trench in the substrate;

    performing a nitridation process to form a silicon nitride liner on the surface of the trench; and

    depositing an insulating material over the trench and filling the trench with the insulating material.

2. (original) The method of claim 1, wherein the nitridation process comprises performing a furnace treatment.

3. (original) The method of claim 2, wherein the furnace treatment is carried out in an atmosphere of gaseous nitrogen.

4. (original) The method of claim 1, wherein the nitridation process comprises performing a rapid thermal treatment.

5. (original) The method of claim 4, wherein the rapid thermal treatment is carried out in an atmosphere of gaseous nitrogen.

6. (original) The method of claim 1, wherein the nitridation process comprises performing a plasma process.

7. (original) The method of claim 6, wherein the plasma process comprises performing a nitrogen plasma treatment.

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8. (original) The method of claim 1, further comprising forming a liner oxide layer over the substrate,, wherein the formation of the liner oxide layer and the nitridation process for forming the silicon nitride liner are performed in-situ.

9. (original) The method of claim 8, wherein the step of forming the liner oxide layer comprises performing a thermal oxidation and integrating the thermal oxidation process with the nitridation process by introducing gaseous nitrogen mid-way through the thermal treatment.
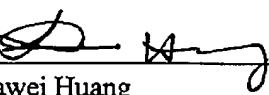
Claims 10-11 (canceled)

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No new matter has been added to the application by the amendments made to the claims.

Respectfully submitted,
J.C. PATENTS

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